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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,190	11/17/2003	Robert L. Horn	A7995.0018/P018	9562
24998	7590	11/18/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			SCHLIE, PAUL W	
2101 L Street, NW			ART UNIT	
Washington, DC 20037			PAPER NUMBER	
			2186	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/713,190	<b>Applicant(s)</b> HORN ET AL.	
	<b>Examiner</b> Paul W. Schlie	<b>Art Unit</b> 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-12 have been examined.

#### ***Specification***

2. The disclosure is objected to because of the following informalities: Within paragraph 31, the virtualizer module 1 220 is cited as storing write data into module 2 230's cache seemingly unnecessarily; and subsequently cited doing the same, however resulting in module 1 220 cache being expected to be containing the data. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 7-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As per claim 7, there seems to be no corresponding given reason or utility to justify the elements "copying said write data into the cache of a second virtualizer; forwarding the write data with a write command from said second virtualizer to said RAID controller" as claimed. It is presumed that an element "forwarding the write data with write command from said first virtualizer to said first RAID controller" was intended,

and a result of a corresponding error within the specification; the claim will be reviewed as if this element presumed to be intended is substituted for those presumed in error.

As per claim 8, there seems to be no corresponding given reason or utility to justify "copying said write data into a cache of a second virtualizer" as claimed. It is presumed that this is unintended, and a result of a corresponding error in the specification, which seems to correspondingly cite the data being copied into a second virtualizer cache, but concluding with the data being finally present in the first. The claim will be reviewed as if this element is absent from the claim.

Corrective action is required within either the specification and/or the claim, where the applicant is reminded that no new subject matter may be introduced.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1-8, 10- are rejected under 35 U.S.C. 102(a) as being anticipated by Blumenau et al. (6,421,711).

As per claims 1-8, 10-11, Blumenau et al. teaches a storage system comprising interconnected: host computers, multiple potentially redundantly paired RAID storage subsystems which may comprise data composing one or more virtual volumes, and at least one virtual host controller comprising: a cache, and methods and means either explicitly cited or being inherent as necessary (inclusive of a task manager) to

Art Unit: 2186

coordinate the acceptance of read and/or write requests from a host computer through one or more target ports; where a write request will locally cache the data to be written, and request the data be written on one or more RAID storage subsystems as deemed necessary through a corresponding initiator port; where if a read request will return the requested data if locally cached, or request the data be read from one or more RAID storage subsystems through a corresponding initiator port, where upon receipt will locally cache the received data, and forward it to the corresponding requesting host (see figure 1-2, column 3 lines 33-65, column 7 lines 22-50, and column 8 lines 24-39).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 9 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau et al. (6,421,711) in further in view of Mattis et al. (6,128,623).

As per claims 9 and 12, being dependant on above claims 8 or 11 respectively, Blumenau et al. does not teach that multiple independently received potentially non-sequential sequence of writes may be cached and coalesced into a potentially more efficient sequence of writes to said disk subsystem, nor that reads may be potentially more efficiently satisfied by caching speculative read-ahead access requests. Mattis et al. teaches just this (see abstract, figure 2, column 17 lines 23-30, and column 15-16 lines 55-32). It would be obvious to combine that taught by Blumenau et al. with that


Art Unit: 2186

taught by Mattis et al., for the benefit of improving the efficiency of such a storage system.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul W. Schlie whose telephone number is 571-272-6765. The examiner can normally be reached on Mon-Thu 8:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 517-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
PIERRE BATAILLE  
PRIMARY EXAMINER  
11/11/05